



SEQUENCE LISTING

<110> Burian, Jan
Bartfeld, Daniel

<120> EFFICIENT METHODS FOR PRODUCING
ANTIMICROBIAL CATIONIC PEPTIDES IN HOST CELLS

<130> 660081.411

<140> US/09/444,218

<141> 1999-11-19

<160> 113

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 1

gcgtccggcg tagaggatcg

20

<210> 2

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 2

ccgggatcca atgttcgaga agtag

25

<210> 3

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 3

gcgtccggcg tagaggatcg 20

<210> 4
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer for PCR amplification

<400> 4
 atatggatcc agatatgtat cataggttga tgttgggc 38

<210> 5
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthesized oligonucleotide used as template for
 PCR

<400> 5
 tttaacgggg atccgtctca tatgatcctg aaaaaatgg 39

<210> 6
 <211> 49
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthesized Oligonucleotide used as a template for
 PCR

<400> 6
 ccgtggtggc cgtggcgtcg taaataagct tgatatcttg gtacctgcg 49

<210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer for PCR amplification

<400> 7
 tttaacgggg atccgtctca tatg 24

<210> 8
 <211> 25
 <212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 8

taagcttgat atcttggtac ctgcg

25

<210> 9

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer used for PCR modification of DNA fragment
encoding MBI-11

<400> 9

tttaacgggg atccgtctca tatg

24

<210> 10

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer used for PCR modification of DNA fragment
encoding MBI-11

<400> 10

cgcgagctt aataatacat aattttacga cgccacggcc accacggc

48

<210> 11

<211> 114

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthesized oligonucleotide used as a template for
PCR

<400> 11

cgccagggtt ttccagtcg cgacggatcc gtctcatatg atcctgaaaa aatggccgtg
gtggccgtgg cgctgtaaaa ttaattgaat tcgtcatagc tgtttctgt gtga

60

114

<210> 12

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 12

cgccagggtt ttcccagtca cgac

24

<210> 13

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 13

tcacacagga aacagctatg ac

22

<210> 14

<211> 151

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthesized oligonucleotide used as a template for
PCR

<400> 14

cgccagggtt ttcccagtca cgacggatcc gtctcatatg attctgcgtt ggccgtggtg
gcccgtggcgt cgcaaatga ttctgcgttg gccgtgggtg ccgtggcgtc gcaaatggc
ggcctaagct tcgatacctc acgccggacg c

60

120

151

<210> 15

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 15

cgccagggtt ttcccagtca cgac

24

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 16

gcgtccggcg tagaggatcg

20

<210> 17
 <211> 108
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Synthesized oligonucleotide us as a template for
 PCR

<400> 17

cgccagggtt ttccagtcga cgacggatcc gtctcatatg attctgcgtt ggccgtgggtg 60
 gccgtggcgt cgcaaaatgc ataagcttcg atctctacg ccggacgc 108

<210> 18
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 18

cgccagggtt ttccagtcga cgac 24

<210> 19
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 19

gcgtccggcg tagaggatcg 20

<210> 20
 <211> 97
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Synthesized oligonucleotide used as a template for
 PCR

<400> 20

cgccagggtt ttccagtcga cgacggatcc gtctatgcat gaagcggaac cggaagcgga 60
 accgattaat taagcttcga tctctacgc cggacgc 97

<210> 21
 <211> 24

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer for PCR amplification

 <400> 21
 cgccagggtt ttccagtcg cgac 24

 <210> 22
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer for PCR amplification

 <400> 22
 gcgtccggcg tagaggatcg 20

 <210> 23
 <211> 114
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized oligonucleotide used as a template for
 PCR

 <400> 23
 cgccagggtt ttccagtcg cgacggatcc gtctcatatg actatgattc tgcgttgccc 60
 gtggtggccc tggcgtcgca aaatgcataa gcttcgatcc tctacgccgg acgc 114

 <210> 24
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer for PCR amplification

 <400> 24
 cgccagggtt ttccagtcg cgac 24

 <210> 25
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer for PCR amplification

<400> 25
gcgtccggcg tagaggatcg 20

<210> 26
<211> 157
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for
PCR

<400> 26
cgccagggtt ttccagtcga cgacggatcc gtctcatatg accatgaaat ggaaatcttt 60
catcaaaaaa ctgacctctg ctgctaaaaa agttgttacc accgctaaac cgctgatctc 120
tatgcatgct taagcttcga tcctctacgc cggacgc 157

<210> 27
<211> 11
<212> PRT
<213> Apis mellifera

<220>
<223> Anionic spacer peptide

<400> 27
His Glu Ala Glu Pro Glu Ala Glu Pro Ile Met
1 5 10

<210> 28
<211> 8
<212> PRT
<213> Apis mellifera

<400> 28
Glu Ala Glu Pro Glu Ala Glu Pro
1 5

<210> 29
<211> 8
<212> PRT
<213> Apis mellifera

<400> 29
Glu Ala Lys Pro Glu Ala Glu Pro
1 5

<210> 30
<211> 8
<212> PRT

<213> Apis mellifera

<400> 30

Glu Ala Glu Pro Lys Ala Glu Pro
1 5

<210> 31

<211> 8

<212> PRT

<213> Apis mellifera

<400> 31

Glu Ala Glu Ser Glu Ala Glu Pro
1 5

<210> 32

<211> 8

<212> PRT

<213> Apis mellifera

<400> 32

Glu Ala Glu Leu Glu Ala Glu Pro
1 5

<210> 33

<211> 6

<212> PRT

<213> Apis mellifera

<400> 33

Glu Pro Glu Ala Glu Pro
1 5

<210> 34

<211> 4

<212> PRT

<213> Apis mellifera

<400> 34

Glu Ala Glu Pro
1

<210> 35

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified indolicidin cationic peptide

<400> 35

Ile Leu Lys Lys Trp Pro Trp Trp Pro Trp Arg Arg Lys
 1 5 10

<210> 36
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Modified indolicidin cationic peptide

<400> 36

Ile Leu Arg Trp Pro Trp Trp Pro Trp Arg Arg Lys
 1 5 10

<210> 37
 <211> 34
 <212> PRT
 <213> Apis mellifera

<400> 37

Tyr Val Pro Leu Pro Asn Val Pro Gln Pro Gly Arg Arg Pro Phe Pro
 1 5 10 15
 Thr Phe Pro Gly Gln Gly Pro Phe Asn Pro Lys Ile Lys Trp Pro Gln
 20 25 30
 Gly Tyr

<210> 38
 <211> 34
 <212> PRT
 <213> Drosophila melanogaster

<400> 38

Val Phe Ile Asp Ile Leu Asp Lys Val Glu Asn Ala Ile His Asn Ala
 1 5 10 15
 Ala Gln Val Gly Ile Gly Phe Ala Lys Pro Phe Glu Lys Leu Ile Asn
 20 25 30
 Pro Lys

<210> 39
 <211> 18
 <212> PRT
 <213> Apis mellifera

<400> 39

Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
 1 5 10 15
 Arg Ile

<210> 40
 <211> 18
 <212> PRT
 <213> *Apis mellifera*

<400> 40
 Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
 1 5 10 15
 Arg Leu

<210> 41
 <211> 18
 <212> PRT
 <213> *Apis mellifera*

<400> 41
 Gly Asn Asn Arg Pro Ile Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
 1 5 10 15
 Arg Leu

<210> 42
 <211> 12
 <212> PRT
 <213> *Bos taurus*

<400> 42
 Arg Leu Cys Arg Ile Val Val Ile Arg Val Cys Arg
 1 5 10

<210> 43
 <211> 42
 <212> PRT
 <213> *Bos taurus*

<400> 43
 Arg Phe Arg Pro Pro Ile Arg Arg Pro Pro Ile Arg Pro Pro Phe Tyr
 1 5 10 15
 Pro Pro Phe Arg Pro Pro Ile Arg Pro Pro Ile Phe Pro Pro Ile Arg
 20 25 30
 Pro Pro Phe Arg Pro Pro Leu Arg Phe Pro
 35 40

<210> 44
 <211> 59
 <212> PRT
 <213> *Bos taurus*

<400> 44

Arg	Arg	Ile	Arg	Pro	Arg	Pro	Pro	Arg	Leu	Pro	Arg	Pro	Arg	Pro	Arg
1				5					10					15	
Pro	Leu	Pro	Phe	Pro	Arg	Pro	Gly	Pro	Arg	Pro	Ile	Pro	Arg	Pro	Leu
			20					25					30		
Pro	Phe	Pro	Arg	Pro	Gly	Pro	Arg	Pro	Ile	Pro	Arg	Pro	Leu	Pro	Phe
			35				40					45			
Pro	Arg	Pro	Gly	Pro	Arg	Pro	Ile	Pro	Arg	Pro					
	50						55								

<210> 45

<211> 37

<212> PRT

<213> Manduca sexta

<400> 45

Trp	Asn	Pro	Phe	Lys	Glu	Leu	Glu	Arg	Ala	Gly	Gln	Arg	Val	Arg	Asp
1				5					10					15	
Ala	Val	Ile	Ser	Ala	Ala	Pro	Ala	Val	Ala	Thr	Val	Gly	Gln	Ala	Ala
			20					25					30		
Ala	Ile	Ala	Arg	Gly											
			35												

<210> 46

<211> 37

<212> PRT

<213> Manduca sexta

<400> 46

Trp	Asn	Pro	Phe	Lys	Glu	Leu	Glu	Arg	Ala	Gly	Gln	Arg	Val	Arg	Asp
1				5					10					15	
Ala	Ile	Ile	Ser	Ala	Gly	Pro	Ala	Val	Ala	Thr	Val	Gly	Gln	Ala	Ala
			20					25					30		
Ala	Ile	Ala	Arg	Gly											
			35												

<210> 47

<211> 37

<212> PRT

<213> Manduca sexta

<400> 47

Trp	Asn	Pro	Phe	Lys	Glu	Leu	Glu	Arg	Ala	Gly	Gln	Arg	Val	Arg	Asp
1				5					10					15	
Ala	Ile	Ile	Ser	Ala	Ala	Pro	Ala	Val	Ala	Thr	Val	Gly	Gln	Ala	Ala
			20					25					30		
Ala	Ile	Ala	Arg	Gly											
			35												

<210> 48

<211> 37

<212> PRT

<213> *Manduca sexta*

<400> 48

Trp	Asn	Pro	Phe	Lys	Glu	Leu	Glu	Arg	Ala	Gly	Gln	Arg	Val	Arg	Asp
1				5				10					15		
Ala	Val	Ile	Ser	Ala	Ala	Ala	Val	Ala	Thr	Val	Gly	Gln	Ala	Ala	Ala
			20					25					30		
Ile	Ala	Arg	Gly	Gly											
			35												

<210> 49

<211> 24

<212> PRT

<213> *Bombina variegata*

<400> 49

Gly	Ile	Gly	Ala	Leu	Ser	Ala	Lys	Gly	Ala	Leu	Lys	Gly	Leu	Ala	Lys
1				5				10					15		
Gly	Leu	Ala	Glx	His	Phe	Ala	Asn								
			20												

<210> 50

<211> 27

<212> PRT

<213> *Bombina orientalis*

<400> 50

Gly	Ile	Gly	Ala	Ser	Ile	Leu	Ser	Ala	Gly	Lys	Ser	Ala	Leu	Lys	Gly
1				5				10					15		
Leu	Ala	Lys	Gly	Leu	Ala	Glu	His	Phe	Ala	Asn					
			20					25							

<210> 51

<211> 27

<212> PRT

<213> *Bombina orientalis*

<400> 51

Gly	Ile	Gly	Ser	Ala	Ile	Leu	Ser	Ala	Gly	Lys	Ser	Ala	Leu	Lys	Gly
1				5				10					15		
Leu	Ala	Lys	Gly	Leu	Ala	Glu	His	Phe	Ala	Asn					
			20					25							

<210> 52

<211> 17

<212> PRT

<213> *Megabombus pennsylvanicus*

<400> 52

Ile	Lys	Ile	Thr	Thr	Met	Leu	Ala	Lys	Leu	Gly	Lys	Val	Leu	Ala	His
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1	5	10	15
val			

```
<210> 53
<211> 17
<212> PRT
<213> Megabombus pennsylvanicus
```

<400> 53
Ser Lys Ile Thr Asp Ile Leu Ala Lys Leu Gly Lys Val Leu Ala His
1 5 10 15
Val

```
<210> 54
<211> 58
<212> PRT
<213> Bos taurus
```

			<400>	54											
Arg	Pro	Asp	Phe	Cys	Leu	Glu	Pro	Pro	Tyr	Thr	Gly	Pro	Cys	Lys	Ala
1				5					10					15	
Arg	Ile	Ile	Arg	Tyr	Phe	Tyr	Asn	Ala	Lys	Ala	Gly	Leu	Cys	Gln	Thr
			20					25					30		
Phe	Val	Tyr	Gly	Gly	Cys	Arg	Ala	Lys	Arg	Asn	Asn	Phe	Lys	Ser	Ala
		35					40					45			
Glu	Asp	Cys	Met	Arg	Thr	Cys	Gly	Gly	Ala						
	50					55									

```
<210> 55
<211> 24
<212> PRT
<213> Rana esculenta
```

```

      <400> 55
Phe Leu Pro Leu Leu Ala Gly Leu Ala Ala Asn Phe Leu Pro Lys Ile
  1             5             10             15
Phe Cys Lys Ile Thr Arg Lys Cys
      20

```

```
<210> 56
<211> 33
<212> PRT
<213> Rana esculenta
```

<400> 56

Gly	Ile	Met	Asp	Thr	Leu	Lys	Asn	Leu	Ala	Lys	Thr	Ala	Gly	Lys	Gly
1				5					10					15	
Ala	Leu	Gln	Ser	Leu	Leu	Asn	Lys	Ala	Ser	Cys	Lys	Leu	Ser	Gly	Gln
			20					25					30		

Cys

<210> 57
 <211> 37
 <212> PRT
 <213> *Hyalophora cecropia*

<400> 57
 Lys Trp Lys Leu Phe Lys Lys Ile Glu Lys Val Gly Gln Asn Ile Arg
 1 5 10 15
 Asp Gly Ile Ile Lys Ala Gly Pro Ala Val Ala Val Val Gly Gln Ala
 20 25 30
 Thr Gln Ile Ala Lys
 35

<210> 58
 <211> 35
 <212> PRT
 <213> *Hyalophora cecropia*

<400> 58
 Lys Trp Lys Val Phe Lys Lys Ile Glu Lys Met Gly Arg Asn Ile Arg
 1 5 10 15
 Asn Gly Ile Val Lys Ala Gly Pro Ala Ile Ala Val Leu Gly Glu Ala
 20 25 30
 Lys Ala Leu
 35

<210> 59
 <211> 40
 <212> PRT
 <213> *Drosophila melanogaster*

<400> 59
 Gly Trp Leu Lys Lys Leu Gly Lys Arg Ile Glu Arg Ile Gly Gln His
 1 5 10 15
 Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Ala Gln Gln Ala Ala
 20 25 30
 Asn Val Ala Ala Thr Ala Arg Gly
 35 40

<210> 60
 <211> 36
 <212> PRT
 <213> *Hyalophora cecropia*

<400> 60
 Trp Asn Pro Phe Lys Glu Leu Glu Lys Val Gly Gln Arg Val Arg Asp
 1 5 10 15
 Ala Val Ile Ser Ala Gly Pro Ala Val Ala Thr Val Ala Gln Ala Thr

20
Ala Leu Ala Lys
35

<210> 61
<211> 31
<212> PRT
<213> Sus scrofa

<400> 61
Ser Trp Leu Ser Lys Thr Ala Lys Lys Leu Glu Asn Ser Ala Lys Lys
1 5 10 15
Arg Ile Ser Glu Gly Ile Ala Ile Ala Ile Gln Gly Gly Pro Arg
20 25 30

<210> 62
<211> 37
<212> PRT
<213> Leiurus quin-questriatus hebraeus

<400> 62
Glx Phe Thr Asn Val Ser Cys Thr Thr Ser Lys Glu Cys Trp Ser Val
1 5 10 15
Cys Gln Arg Leu His Asn Thr Ser Arg Gly Lys Cys Met Asn Lys Lys
20 25 30
Cys Arg Cys Tyr Ser
35

<210> 63
<211> 13
<212> PRT
<213> Vespa crabo

<400> 63
Phe Leu Pro Leu Ile Leu Arg Lys Ile Val Thr Ala Leu
1 5 10

<210> 64
<211> 35
<212> PRT
<213> Mus musculus

<400> 64
Leu Arg Asp Leu Val Cys Tyr Cys Arg Ser Arg Gly Cys Lys Gly Arg
1 5 10 15
Glu Arg Met Asn Gly Thr Cys Arg Lys Gly His Leu Leu Tyr Thr Leu
20 25 30
Cys Cys Arg
35

<210> 65

<211> 35
 <212> PRT
 <213> Mus musculus

<400> 65
 Leu Arg Asp Leu Val Cys Tyr Cys Arg Thr Arg Gly Cys Lys Arg Arg
 1 5 10 15
 Glu Arg Met Asn Gly Thr Cys Arg Lys Gly His Leu Met Tyr Thr Leu
 20 25 30
 Cys Cys Arg
 35

<210> 66
 <211> 33
 <212> PRT
 <213> Oryctolagus cuniculus

<400> 66
 Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Arg Glu Arg Arg
 1 5 10 15
 Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
 20 25 30
 Arg

<210> 67
 <211> 33
 <212> PRT
 <213> Oryctolagus cuniculus

<400> 67
 Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Leu Glu Arg Arg
 1 5 10 15
 Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
 20 25 30
 Arg

<210> 68
 <211> 31
 <212> PRT
 <213> Cavia cutteri

<400> 68
 Arg Arg Cys Ile Cys Thr Thr Arg Thr Cys Arg Phe Pro Tyr Arg Arg
 1 5 10 15
 Leu Gly Thr Cys Ile Phe Gln Asn Arg Val Tyr Thr Phe Cys Cys
 20 25 30

<210> 69
 <211> 31

<212> PRT

<213> *Cavia cutteri*

<400> 69

Arg	Arg	Cys	Ile	Cys	Thr	Thr	Arg	Thr	Cys	Arg	Phe	Pro	Tyr	Arg	Arg
1				5					10					15	
Leu	Gly	Thr	Cys	Leu	Phe	Gln	Asn	Arg	Val	Tyr	Thr	Phe	Cys	Cys	
			20					25					30		

<210> 70

<211> 30

<212> PRT

<213> *Homo Sapien*

<400> 70

Ala	Cys	Tyr	Cys	Arg	Ile	Pro	Ala	Cys	Ile	Ala	Gly	Glu	Arg	Arg	Tyr
1				5					10					15	
Gly	Thr	Cys	Ile	Tyr	Gln	Gly	Arg	Leu	Trp	Ala	Phe	Cys	Cys		
			20					25					30		

<210> 71

<211> 29

<212> PRT

<213> *Homo Sapien*

<400> 71

Cys	Tyr	Cys	Arg	Ile	Pro	Ala	Cys	Ile	Ala	Gly	Glu	Arg	Arg	Tyr	Gly
1				5					10					15	
Thr	Cys	Ile	Tyr	Gln	Gly	Arg	Leu	Trp	Ala	Phe	Cys	Cys			
			20					25							

<210> 72

<211> 33

<212> PRT

<213> *Oryctolagus cuniculus*

<400> 72

Val	Val	Cys	Ala	Cys	Arg	Arg	Ala	Leu	Cys	Leu	Pro	Arg	Glu	Arg	Arg
1				5					10					15	
Ala	Gly	Phe	Cys	Arg	Ile	Arg	Gly	Arg	Ile	His	Pro	Leu	Cys	Cys	Arg
			20					25					30		

Arg

<210> 73

<211> 33

<212> PRT

<213> *Oryctolagus cuniculus*

<400> 73

Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Leu Glu Arg Arg

1 5 10 15
Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
20 25 30
Arg

```
<210> 74
<211> 32
<212> PRT
<213> Rattus norvegicus
```

<400> 74															
Val	Thr	Cys	Tyr	Cys	Arg	Arg	Thr	Arg	Cys	Gly	Phe	Arg	Glu	Arg	Leu
1				5					10					15	
Ser	Gly	Ala	Cys	Gly	Tyr	Arg	Gly	Arg	Ile	Tyr	Arg	Leu	Cys	Cys	Arg
			20					25					30		

```
<210> 75
<211> 32
<212> PRT
<213> Rattus norvegicus
```

<400> 75
 Val Thr Cys Tyr Cys Arg Ser Thr Arg Cys Gly Phe Arg Glu Arg Leu
 1 5 10 15
 Ser Gly Ala Cys Gly Tyr Arg Gly Arg Ile Tyr Arg Leu Cys Cys Arg
 20 25 30

```
<210> 76
<211> 38
<212> PRT
<213> Bos taurus
```

<400> 76
Asp Phe Ala Ser Cys His Thr Asn Gly Gly Ile Cys Leu Pro Asn Arg
1 5 10 15
Cys Pro Gly His Met Ile Gln Ile Gly Ile Cys Phe Arg Pro Arg Val
20 25 30
Lys Cys Cys Arg Ser Trp
35

```
<210> 77
<211> 40
<212> PRT
<213> Bos taurus
```

```

      <400> 77
Val Arg Asn His Val Thr Cys Arg Ile Asn Arg Gly Phe Cys Val Pro
 1              5              10              15
Ile Arg Cys Pro Gly Arg Thr Arg Gln Ile Gly Thr Cys Phe Gly Pro
      20              25              30

```

Arg Ile Lys Cys Cys Arg Ser Trp
 35 40

<210> 78
 <211> 38
 <212> PRT
 <213> Bos taurus

<400> 78
 Asn Pro Val Ser Cys Val Arg Asn Lys Gly Ile Cys Val Pro Ile Arg
 1 5 10 15
 Cys Pro Gly Ser Met Lys Gln Ile Gly Thr Cys Val Gly Arg Ala Val
 20 25 30
 Lys Cys Cys Arg Lys Lys
 35

<210> 79
 <211> 40
 <212> PRT
 <213> Sacrophaga peregrina

<400> 79
 Ala Thr Cys Asp Leu Leu Ser Gly Thr Gly Ile Asn His Ser Ala Cys
 1 5 10 15
 Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Gly
 20 25 30
 Lys Ala Val Cys Val Cys Arg Asn
 35 40

<210> 80
 <211> 38
 <212> PRT
 <213> Aeschna cyanea

<400> 80
 Gly Phe Gly Cys Pro Leu Asp Gln Met Gln Cys His Arg His Cys Gln
 1 5 10 15
 Thr Ile Thr Gly Arg Ser Gly Gly Tyr Cys Ser Gly Pro Leu Lys Leu
 20 25 30
 Thr Cys Thr Cys Tyr Arg
 35

<210> 81
 <211> 38
 <212> PRT
 <213> Leiurus quinquestriatus

<400> 81
 Gly Phe Gly Cys Pro Leu Asn Gln Gly Ala Cys His Arg His Cys Arg
 1 5 10 15
 Ser Ile Arg Arg Arg Gly Gly Tyr Cys Ala Gly Phe Phe Lys Gln Thr

20 25 30
 Cys Thr Cys Tyr Arg Asn
 35

<210> 82
 <211> 32
 <212> PRT
 <213> *Phyllomedusa sauvagii*

<400> 82
 Ala Leu Trp Lys Thr Met Leu Lys Lys Leu Gly Thr Met Ala Leu His
 1 5 10 15
 Ala Gly Lys Ala Ala Leu Gly Ala Ala Asp Thr Ile Ser Gln Thr Gln
 20 25 30

<210> 83
 <211> 19
 <212> PRT
 <213> *Drosophila melanogaster*

<400> 83
 Gly Lys Pro Arg Pro Tyr Ser Pro Arg Pro Thr Ser His Pro Arg Pro
 1 5 10 15
 Ile Arg Val

<210> 84
 <211> 46
 <212> PRT
 <213> *Rana esculenta*

<400> 84
 Gly Ile Phe Ser Lys Leu Gly Arg Lys Lys Ile Lys Asn Leu Leu Ile
 1 5 10 15
 Ser Gly Leu Lys Asn Val Gly Lys Glu Val Gly Met Asp Val Val Arg
 20 25 30
 Thr Gly Ile Asp Ile Ala Gly Cys Lys Ile Lys Gly Glu Cys
 35 40 45

<210> 85
 <211> 13
 <212> PRT
 <213> *Bos taurus*

<400> 85
 Ile Leu Pro Trp Lys Trp Pro Trp Trp Pro Trp Arg Arg
 1 5 10

<210> 86
 <211> 25
 <212> PRT

<213> Bos taurus

<400> 86

Phe	Lys	Cys	Arg	Arg	Trp	Gln	Trp	Arg	Met	Lys	Lys	Leu	Gly	Ala	Pro
1				5					10					15	
Ser	Ile	Thr	Cys	Val	Arg	Arg	Ala	Phe							
			20					25							

<210> 87

<211> 34

<212> PRT

<213> Lactococcus lactis

<400> 87

Ile	Thr	Ser	Ile	Ser	Leu	Cys	Thr	Pro	Gly	Cys	Lys	Thr	Gly	Ala	Leu
1				5					10					15	
Met	Gly	Cys	Asn	Met	Lys	Thr	Ala	Thr	Cys	His	Cys	Ser	Ile	His	Val
			20					25					30		
Ser	Lys														

<210> 88

<211> 34

<212> PRT

<213> Staphylococcus epidermidis

<400> 88

Thr	Ala	Gly	Pro	Ala	Ile	Arg	Ala	Ser	Val	Lys	Gln	Cys	Gln	Lys	Thr
1				5					10					15	
Leu	Lys	Ala	Thr	Arg	Leu	Phe	Thr	Val	Ser	Cys	Lys	Gly	Lys	Asn	Gly
			20					25					30		
Cys	Lys														

<210> 89

<211> 56

<212> PRT

<213> Bacillus subtilis

<400> 89

Met	Ser	Lys	Phe	Asp	Asp	Phe	Asp	Leu	Asp	Val	Val	Lys	Val	Ser	Lys
1				5					10					15	
Gln	Asp	Ser	Lys	Ile	Thr	Pro	Gln	Trp	Lys	Ser	Glu	Ser	Leu	Cys	Thr
			20					25					30		
Pro	Gly	Cys	Val	Thr	Gly	Ala	Leu	Gln	Thr	Cys	Phe	Leu	Gln	Thr	Leu
		35					40					45			
Thr	Cys	Asn	Cys	Lys	Ile	Ser	Lys								
	50						55								

<210> 90

<211> 37

<212> PRT

<213> *Leuconostoc gelidum*

<400> 90

Lys	Tyr	Tyr	Gly	Asn	Gly	Val	His	Cys	Thr	Lys	Ser	Gly	Cys	Ser	Val
1				5					10					15	
Asn	Trp	Gly	Glu	Ala	Phe	Ser	Ala	Gly	Val	His	Arg	Leu	Ala	Asn	Gly
			20					25					30		
Gly	Asn	Gly	Phe	Trp											
			35												

<210> 91

<211> 23

<212> PRT

<213> *Xenopus laevis*

<400> 91

Gly	Ile	Gly	Lys	Phe	Leu	His	Ser	Ala	Gly	Lys	Phe	Gly	Lys	Ala	Phe
1				5					10					15	
Val	Gly	Glu	Ile	Met	Lys	Ser									
			20												

<210> 92

<211> 23

<212> PRT

<213> *Xenopus laevis*

<400> 92

Gly	Ile	Gly	Lys	Phe	Leu	His	Ser	Ala	Lys	Lys	Phe	Gly	Lys	Ala	Phe
1				5					10					15	
Val	Gly	Glu	Ile	Met	Asn	Ser									
			20												

<210> 93

<211> 21

<212> PRT

<213> *Xenopus laevis*

<400> 93

Gly	Met	Ala	Ser	Lys	Ala	Gly	Ala	Ile	Ala	Gly	Lys	Ile	Ala	Lys	Val
1				5					10					15	
Ala	Leu	Lys	Ala	Leu											
			20												

<210> 94

<211> 24

<212> PRT

<213> *Xenopus laevis*

<400> 94

Gly	Val	Leu	Ser	Asn	Val	Ile	Gly	Tyr	Leu	Lys	Lys	Leu	Gly	Thr	Gly
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1 5 10 15
 Ala Leu Asn Ala Val Leu Lys Gln
 20

<210> 95
 <211> 25
 <212> PRT
 <213> *Xenopus laevis*

<400> 95
 Gly Trp Ala Ser Lys Ile Gly Gln Thr Leu Gly Lys Ile Ala Lys Val
 1 5 10 15
 Gly Leu Lys Glu Leu Ile Gln Pro Lys
 20 25

<210> 96
 <211> 14
 <212> PRT
 <213> *Vespula lewisii*

<400> 96
 Ile Asn Leu Lys Ala Leu Ala Ala Leu Ala Lys Lys Ile Leu
 1 5 10

<210> 97
 <211> 26
 <212> PRT
 <213> *Apis mellifera*

<400> 97
 Gly Ile Gly Ala Val Leu Lys Val Leu Thr Thr Gly Leu Pro Ala Leu
 1 5 10 15
 Ile Ser Trp Ile Lys Arg Lys Arg Gln Gln
 20 25

<210> 98
 <211> 40
 <212> PRT
 <213> *Phormia terronovae*

<400> 98
 Ala Thr Cys Asp Leu Leu Ser Gly Thr Gly Ile Asn His Ser Ala Cys
 1 5 10 15
 Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Gly
 20 25 30
 Lys Gly Val Cys Val Cys Arg Asn
 35 40

<210> 99
 <211> 39
 <212> PRT

<213> *Phormia terronovae*

<400> 99

Ala	Thr	Cys	Asp	Leu	Leu	Ser	Gly	Thr	Gly	Ile	Asn	His	Ser	Ala	Cys
1				5					10					15	
Ala	Ala	His	Cys	Leu	Leu	Arg	Gly	Asn	Arg	Gly	Gly	Tyr	Cys	Asn	Arg
			20					25					30		
Lys	Gly	Val	Cys	Val	Arg	Asn									
			35												

<210> 100

<211> 18

<212> PRT

<213> *Limulus polyphemus*

<400> 100

Arg	Arg	Trp	Cys	Phe	Arg	Val	Cys	Tyr	Arg	Gly	Phe	Cys	Tyr	Arg	Lys
1				5					10					15	
Cys	Arg														

<210> 101

<211> 18

<212> PRT

<213> *Limulus polyphemus*

<400> 101

Arg	Arg	Trp	Cys	Phe	Arg	Val	Cys	Tyr	Lys	Gly	Phe	Cys	Tyr	Arg	Lys
1				5					10					15	
Cys	Arg														

<210> 102

<211> 18

<212> PRT

<213> *Sus scrofa*

<400> 102

Arg	Gly	Gly	Arg	Leu	Cys	Tyr	Cys	Arg	Arg	Arg	Phe	Cys	Val	Cys	Val
1				5					10					15	
Gly	Arg														

<210> 103

<211> 16

<212> PRT

<213> *Sus scrofa*

<400> 103

Arg	Gly	Gly	Arg	Leu	Cys	Tyr	Cys	Arg	Arg	Arg	Phe	Cys	Ile	Cys	Val
1				5					10					15	

<210> 104
 <211> 18
 <212> PRT
 <213> *Sus scrofa*

<400> 104
 Arg Gly Gly Gly Leu Cys Tyr Cys Arg Arg Arg Phe Cys Val Cys Val
 1 5 10 15
 Gly Arg

<210> 105
 <211> 51
 <212> PRT
 <213> *Apis mellifera*

<400> 105
 Val Thr Cys Asp Leu Leu Ser Phe Lys Gly Gln Val Asn Asp Ser Ala
 1 5 10 15
 Cys Ala Ala Asn Cys Leu Ser Leu Gly Lys Ala Gly Gly His Cys Glu
 20 25 30
 Lys Gly Val Cys Ile Cys Arg Lys Thr Ser Phe Lys Asp Leu Trp Asp
 35 40 45
 Lys Tyr Phe
 50

<210> 106
 <211> 39
 <212> PRT
 <213> *Sacrophaga peregrina*

<400> 106
 Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
 1 5 10 15
 Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Ala Gln Gln Ala Ala
 20 25 30
 Asn Val Ala Ala Thr Ala Arg
 35

<210> 107
 <211> 39
 <212> PRT
 <213> *Sacrophaga peregrina*

<400> 107
 Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
 1 5 10 15
 Thr Arg Asp Ala Thr Ile Gln Val Ile Gly Val Ala Gln Gln Ala Ala
 20 25 30
 Asn Val Ala Ala Thr Ala Arg

35

<210> 108
 <211> 47
 <212> PRT
 <213> Bos taurus

<400> 108
 Ser Asp Glu Lys Ala Ser Pro Asp Lys His His Arg Phe Ser Leu Ser
 1 5 10 15
 Arg Tyr Ala Lys Leu Ala Asn Arg Leu Ala Asn Pro Lys Leu Leu Glu
 20 25 30
 Thr Phe Leu Ser Lys Trp Ile Gly Asp Arg Gly Asn Arg Ser Val
 35 40 45

<210> 109
 <211> 17
 <212> PRT
 <213> Tachypleus tridentatus

<400> 109
 Lys Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Arg Cys
 1 5 10 15
 Arg

<210> 110
 <211> 17
 <212> PRT
 <213> Tachypleus tridentatus

<400> 110
 Arg Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Lys Cys
 1 5 10 15
 Arg

<210> 111
 <211> 46
 <212> PRT
 <213> Hordeum vulgare

<400> 111
 Lys Ser Cys Cys Lys Asp Thr Leu Ala Arg Asn Cys Tyr Asn Thr Cys
 1 5 10 15
 Arg Phe Ala Gly Gly Ser Arg Pro Val Cys Ala Gly Ala Cys Arg Cys
 20 25 30
 Lys Ile Ile Ser Gly Pro Lys Cys Pro Ser Asp Tyr Pro Lys
 35 40 45

<210> 112

<211> 23
 <212> PRT
 <213> Trimeresurus wagleri

<400> 112
 Gly Gly Lys Pro Asp Leu Arg Pro Cys Ile Ile Pro Pro Cys His Tyr
 1 5 10 15
 Ile Pro Arg Pro Lys Pro Arg
 20

<210> 113
 <211> 63
 <212> PRT
 <213> Androctonus australis hector

<400> 113
 Val Lys Asp Gly Tyr Ile Val Asp Asp Val Asn Cys Thr Tyr Phe Cys
 1 5 10 15
 Gly Arg Asn Ala Tyr Cys Asn Glu Glu Cys Thr Lys Leu Lys Gly Glu
 20 25 30
 Ser Gly Tyr Cys Gln Trp Ala Ser Pro Tyr Gly Asn Ala Cys Tyr Cys
 35 40 45
 Lys Leu Pro Asp His Val Arg Thr Lys Gly Pro Gly Arg Cys His
 50 55 60